



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE

United States Patent and Trademark Office

Address: COMMISSIONER FOR PATENTS

P.O. Box 1450

Alexandria, Virginia 22313-1450

www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/561,232	04/23/2007	Kook-Heui Lee	50319	1643

1609 7590 02/03/2009

ROYLANCE, ABRAMS, BERDO & GOODMAN, L.L.P.

1300 19TH STREET, N.W.

SUITE 600

WASHINGTON,, DC 20036

EXAMINER

GU, YU

ART UNIT

PAPER NUMBER

2617

MAIL DATE

DELIVERY MODE

02/03/2009

PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/561,232

**Applicant(s)**

LEE ET AL.

**Examiner**

YU (Andy) GU

**Art Unit**

2617

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 19 December 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 19 December 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-85/86)
- Paper No(s)/Mail Date 12/12/2008
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Inventor's Patent Application
- 6) ☐ Other: \_\_\_\_\_

### DETAILED ACTION

1. Claims 1-16 are presented for examination.

#### ***Priority***

2. Acknowledgment is made of applicant's claim for foreign priority under 35 U.S.C. 119(a)-(d). A certified copy has been filed with the application on 12/19/2005.

#### ***Information Disclosure Statement***

3. The information disclosure statements (IDS) submitted on 12/12/2008 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statements are being considered by the examiner.

#### ***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

4. **Claims 2,5-12 and 14** are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

**Claim 2** recites the limitation "the *control channel*". There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the Examiner interprets "*the control channel*" as the "*MBMS control channel*" recited in claim 1.

**Furthermore**, claim 2 discloses the limitation "*or the UE doesn't receive the MBMS control channel*", which contradicts with the limitation "*listening to information on a*

*MBMS control channel*" of **claim 1**. Listening to information on a MBMS channel requires the UE to be able to receive the MBMS control channel. Therefore, claim 2 is rendered indefinite in view of the foregoing reason. For the purpose of this examination, this limitation is interpreted as "or the UE doesn't receive information on the MBMS control channel", which is redundant in view of the immediately preceding limitation.

**Claim 5** recites the limitation "*the UE in IDLE mode*". There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the Examiner interprets "*the UE in IDLE mode*" as a UE in *IDLE mode*.

**Claim 6** recites the limitation "*said uplink message*". There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the Examiner interprets "*said uplink message*" as the "*uplink signaling*" recited in claim 1.

**Furthermore**, claim 6 claims dependency of claim 1, which does not provide antecedent basis for the limitation "*the UE in IDLE mode*".

**Claims 7-9** each recites the limitation "*the "Reason" for cell update*". There is insufficient antecedent basis for this limitation in the claim (s). Appropriate correction is required. **Furthermore**, claim 7-9 each claims dependency to claim 5 and recites the limitation "*the cell update message*". Claim 5 and its parent claim 1 however do not provide antecedent basis for said limitation in question. For the purpose of this examination, claim 7-9 are each taken to be dependent on **claim 4**.

**Claims 10-12** each recites the limitation "*the "Reason" for connection establishment*". There is insufficient antecedent basis for this limitation in the claim (s). Appropriate correction is required.

**Claim 14** recites the limitation "*the SRNC*" and "*the DRNC*". There is insufficient antecedent basis for this limitation in the claim. For the purpose of this examination, the Examiner interprets "*the SRNC*" and "*the DRNC*" as "a SRNC" and "a DRNC", respectively. **Furthermore**, claim 14 recites the limitation "*the reason for cell update*". There is insufficient antecedent basis for this limitation in the claim.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. **Claims 1-3 and 5-6** are rejected under 35 U.S.C. 103(a) as being unpatentable over US 20040157640 A1 Pirskanen et al. (hereinafter Pirskanen).

Regarding **claim 1**, Pirskanen discloses a *method for initiating uplink signaling proactively by a MBMS UE* (see at least paragraph [0005]) *comprising steps of:*

- *the MBMS UE moving to a new cell* (Pirskanen does not specifically disclose limitation, however, it is well known in the art that MBMS UEs travel between cells that support its mobility);
- *listening to information on a MBMS control channel* (see at least paragraph [0011] and [0014], where Pirskanen discloses the CELL\_FACH mode, a state well known in the art in which a UE listens to a common control channel; the CELL\_PCH mode, a state well known in the art in which a UE listens to a paging

channel; the CELL\_DCH mode, a state well known in the art in which a UE listens to a dedicated control channel);

- *initiating an uplink signaling according to information on the MBMS control channel* (see at least Figure 2 item 6 and 7 and paragraph [0054]-[0055]);
- *sending a response message to the UE by a RNC* (see at least Figure 2 item 7 and paragraph [0055]), or
- *if no UE moving to the new cell* (i.e. the UE stays in the current cell it receives the information from), *initiating the uplink signaling proactively by the UE if the information received from the MBMS control channel includes an indication* (see at least Figure 2 item 6 ) *for UE counting* (see at least Figure 2 item 6 and 7);
- *and sending a response message to the UE by the RNC* (see at least Figure 2 item 8 and paragraph [0057]).

Regarding **claim 2**, Pirskanen discloses the limitations as shown in the rejection of **claim 1**. Pirskanen further discloses:

- *wherein the information on the control channel can be information about an indication for point-to-point channel* (i.e. in CELL\_DCH mode, a dedicated control channel i.e. a point-to-point channel) *used by MBMS, there is no information for the MBMS on the MBMS control channel* (i.e. in CELL\_PCH mode in which no information is received when no calls/notifications are designated for a UE), or *the UE doesn't receive information* (i.e. in CELL\_PCH mode in which no information is received when no calls/notifications are designated for a UE) *on the MBMS control channel* (see at least paragraph [0011] and [0014]).

Regarding **claim 3**, Pirskanen discloses the limitations as shown in the rejection of

**claim 1**. Pirskanen further discloses:

- *wherein said MBMS UE is the UE in CELL\_FACH, CELL\_PCH or URA\_PCH mode (see at least paragraph [0011] and [0014]).*

Regarding **claim 5**, Pirskanen discloses the limitations as shown in the rejection of

**claim 1**. Pirskanen further discloses:

- *wherein said MBMS UE comprises the UE in IDLE mode (see at least paragraph [0006] and [0008]).*

Regarding **claim 6**, Pirskanen discloses the limitations as shown in the rejection of

**claim 1 or 5**. Pirskanen further discloses:

- *wherein for the UE in IDLE mode, said uplink message is a RRC (radio resource control) Connection Request message (see at least paragraph [0017]).*

6. **Claims 4, 9** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view of US 20030236085 A1 Ho (hereinafter Ho).

Regarding **claim 4**, Pirskanen discloses the limitations as shown in the rejection of

**claim 1 or 3**. Pirskanen does not specifically disclose *wherein for the UE in*

*CELL\_FACH, CELL\_PCH or URA\_PCH mode, said uplink message is a Cell Update message*. However, in a related field of endeavor, Ho discloses a cell update message sent by a UE (see at least Ho paragraph [0014]) as part of a periodical cell update procedure. It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Ho in order for the UE to exchange information with the network.

Regarding **claim 9**, Pirskanen and Ho discloses the limitations as shown in the rejection of **claim 1** or **3**, and **4**. Pirskanen further discloses that the number of UEs associated with a service is used in the determination of whether to use a PTP channel or a PTM channel (i.e. *MBMS channel parameters*) for communication with the UE. Pirskanen does not specifically disclose *wherein the "Reason for cell update" in the Cell Update message is set as "For MBMS UE counting"*. However, in a related field of endeavor, Ho discloses a cell update message sent by a UE (see at least Ho paragraph [0014]) as part of a periodical cell update procedure. It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Ho to set the reason for cell update message as *"For MBMS UE counting"* in order to facilitate the reporting of the numbers of UEs associated with the network.

7. **Claims 7-8** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view of Ho, and further in view of US 6782274 B1 Park et al. (hereinafter Park).

Regarding **claim 7**, Pirskanen and Ho disclose the limitations as shown in the rejection of **claim 1** or **3**, and **4**. Pirskanen does not specifically disclose *wherein the "Reason for cell update" in the Cell Update message is set as "For MBMS channel parameters"*. However, in a related field of endeavor, Park discloses using cell update message to obtain a response message (i.e. cell update confirm message) comprising at least information element related to the physical channel information (e.g. channel parameters) regarding a network (see at least Park column 12 lines 57-67). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen and Ho, to

set the reason for cell update message as *"For MBMS channel parameters"* in order to obtains a response message (i.e. cell update confirm message) that contains the channel information necessary for further communication between the UE and the network.

Regarding **claim 8**, Pirskanen and Ho discloses the limitations as shown in the rejection of **claim 1 or 3, and 4**. Pirskanen further discloses whether to use a PTP channel or a PTM channel (i.e. *MBMS channel parameters*) for communication the UE depends network (e.g. operator resource) (see at least paragraph [0006]). Pirskanen does not specifically disclose *wherein the "Reason for cell update" in the Cell Update message is set as "For MBMS PtP mode"*. In a related field of endeavor, Park discloses using cell update message to obtain a response message (i.e. cell update confirm message) comprising at least information element related to the physical channel information (e.g. channel parameters) regarding a network (see at least Park column 12 lines 57-67). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen and Ho, to set the reason for cell update message as *"For MBMS PtP mode"* in order to obtains a response message (i.e. cell update confirm message) that contains the channel information (e.g. using PtP or PtM) necessary for further communication between the UE and the network.

8. **Claims 10 and 12** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view of US 7433334 B2 Marjelund et al. (hereinafter Marjelund). Regarding **claim 10**, Pirskanen discloses the limitations as shown in the rejection of **claim 1 or 5, and 6**. Pirskanen does not specifically disclose *wherein the reason for*

*connection establishment in the RRC Connection Request is set as "MBMS channel parameter".* However, Pirskanen however discloses either a PtP channel or a PtM channel can be used for data communication with the UE (see at least paragraph [0005]). In a related field of endeavor, Marjelund discloses the cause for establishing a link (i.e. the reason) are mandatory information elements included in a RRC connection request message (see at least Marjelund column 7 lines 48-55). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Marjelund to set the reason for connection establishment in the RRC connection request as "MBMS channel parameter", in order to obtain a response (e.g. a RRC connection setup message, which is well known in the art) that contains information regarding the channel to be used for further communication.

Regarding **claim 12**, Pirskanen discloses the limitations as shown in the rejection of **claim 1 or 5, and 6**. Pirskanen does not specifically disclose *wherein the "Reason for connection Establishment" in the RRC Connection Request message is set as "For MBMS UE counting"*. Pirskanen however discloses requesting RCC connection establishment in order to facilitate the counting of UEs (see at least paragraph [0017]). In a related field of endeavor, Marjelund discloses the cause for establishing a link (i.e. the reason) are mandatory information elements included in a RRC connection request message (see at least Marjelund column 7 lines 48-55). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Marjelund to set the reason for connection establishment in the RRC connection request as "For MBMS UE counting", in order to facilitate the counting of UEs. .

9. **Claims 11** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view of US 7031694 B2 Koulakiotis et al. (hereinafter Koulakiotis), and further in view of Marjelund.

Regarding **claim 11**, Pirskanen discloses the limitations as shown in the rejection of **claim 1 or 5, and 6**. Pirskanen does not specifically disclose *wherein the reason for connection establishment in the RRC Connection Request is set as "MBMS PtP mode"*.

Pirskanen however discloses either a PtP channel or a PtM channel can be used for data communication with the UE (see at least paragraph [0005]). In a related field of endeavor, Koulakiotis discloses providing user the option to receive information (e.g. MBMS data) on dedicated channel (i.e. PtP) or a common channel. (i.e. PtM). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Koulakiotis to give a user the option to choose between PtP or PtM in order to create different business modes (see at least Koulakiotis column 2 lines 18-26). Additionally, Marjelund discloses the cause for establishing a link (i.e. the reason) are mandatory information elements included in a RRC connection request message (see at least Marjelund column 7 lines 48-55). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Koulakiotis, and further in view of Marjelund to set the reason for connection establishment in the RRC connection request as *"MBMS PtP mode"*, in order to request a PtP mode connection.

10. **Claims 13** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view of US 20020110106 A1 Koo et al.(hereinafter Koo), and US 20030003895 A1 Wallentin et al. (hereinafter Wallentin).

Regarding **claim 13**, Pirskanen discloses the limitations as shown in the rejection of **claim 1**. Pirskanen further discloses a connected mode CELL\_FACH mode (see at least paragraph [0011]). Pirskanen still further discloses the reason for uplink signaling is for MBMS UE counting (see at least Figure 2 item 6 and 7). Pirskanen is however silent as to the limitation *sending a downlink signaling by the RNC to make the UE enter CELL\_FACH state if the reason for sending uplink signaling is "For MBMS UE counting"*. In a related field of endeavor, Koo discloses sending a downlink signaling by a RNC to make the UE enter a connected mode from an idle mode (see at least Koo paragraph [0026]); and Wallentin discloses that in CELL\_FACH mode, the UE continuously listens to a common channel (see at least Wallentin paragraph [0016]). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Koo and Wallentin to put the UE in CELL\_FACH after sending uplink signaling for MBMS UE counting, in order to facilitate subsequent processing (e.g. receiving a confirmation, see at least Pirskanen Figure 2 item 8).

11. **Claims 14-15** are rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view of Koulakiotis, and further in view of Marjelund and US 6850759 B2 Van Lieshout et al. (hereinafter Van).

Regarding **claim 14**, Pirskanen discloses the limitations as shown in the rejection of **claim 1**. Pirskanen is silent as to *sending a message of Radio Link Establishment*

*Request by a SRNC to a DRNC if an Iur interface exists and the reason for cell update is "For MBMS PtP mode".*

In a related field of endeavor, Koulakiotis discloses providing user the option to receive information (e.g. MBMS data) on dedicated channel (i.e. PtP) or a common channel (i.e. PtM). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Koulakiotis to give a user the option to choose between PtP or PtM in order to create different business modes (see at least Koulakiotis column 2 lines 18-26). Additionally, Marjelund discloses the cause for establishing a link (i.e. the reason) as mandatory information elements included in a RRC connection request message (see at least Marjelund column 7 lines 48-55). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view of Koulakiotis, and further in view of Marjelund to set the reason for connection establishment in the RRC connection request as "*MBMS PtP mode*", in order to request a PtP mode connection.

Additionally, in a related field of endeavor, Van discloses a SRNC and a DRNC and a Iur interface between the SRNC and DRNC (see at least Figure 1 and column 2 lines 30-34, 40-43 and 53-62, where Van further teach that a SRNC is in charge of the radio connection with the UE, and has full control of the radio connection within the RAN, and is connect to the core network, where as a DRNC supports the SRNC by supplying radio resources to the UE). Therefore, in order to establish a PtP mode channel with a UE served by a DRNC controlled by a SRNC, It would have been obvious to a person of ordinary skill in the art to modify Pirskanen, Koulakiotis and Marjelund in view of Van to

send a radio link establishment request by the SRNC to the DRNC to request the DRNC to setup a PtP channel with the UE.

Regarding **claim 15**, Pirskanen, Koulakiotis, Marjelund and Van discloses the limitations as shown in the rejection of **claim 1** and **14**. Pirskanen does not specifically disclose *adding the UE into the context of the service by the DRNC to add the number of the UEs by 1 after receiving the Radio Link Establishment Request message, and if the increase of UE number makes channel type change from PtP to PtM, the DRNC sending a Radio Link Establishment Failure message to the SRNC.*

Pirskanen However discloses that the decision to serve the UE either via PtP or PtM channel mode as dependent on the number of UE supported by a cell, and that there could be a threshold value x used to make such decision (see at least paragraph [0007], where Pirskanen teach if the number of UEs is less than x, then use PtP, or else use PtM). Pirskanen further discloses the counting of UE (see at least Figure 2). It would have been obvious to a person of ordinary skill in the art that an increment of number of UEs by 1 could make the RNC to switch from PtP mode to PtM mode, thus the RNC would fail to serve the UE requesting the PtP type service. Pirskanen however does not mention a SRNC or DRNC.

Van discloses a SRNC and a DRNC and a Iur interface between the SRNC and DRNC (see at least Van Figure 1 and column 2 lines 30-34, 40-43 and 53-62, where Van further teach that a SRNC is in charge of the radio connection with the UE, and has full control of the radio connection within the RAN, and is connect to the core network, where as a DRNC supports the SRNC by supplying radio resources to the UE , thereby

adding the UE into the context of service by the DRNC). Therefore, in order to notify the SRNC the service status (i.e. failed to receive PtP type services) of a UE, It would have been obvious to a person of ordinary skill in the art to modify Pirskanen, Koulakiotis and Marjelund in view of Van to send a radio link establishment failure message by the DRNC to the SRNC for further processing.

12. **Claim 16** is rejected under 35 U.S.C. 103(a) as being unpatentable over Pirskanen in view US 20040266447 A1 Terry (hereinafter Terry), and further in view of Van.

Regarding **claim 16**, Pirskanen discloses the limitations as shown in the rejection of **claim 1**. Pirskanen is silent as to *keeping the UE in CELL\_FACH state and sending a Common Transport Channel Resource Initialization message to the DRNC by the SRNC if the Iur interface exists and the SRNC knows that the destination cell under the DRNC uses the channel type of PtM*.

In a related field of endeavor, Terry teaches that PtM services are carried out on a FACH channel (thus, a UE receiving data is kept in CELL\_FACH state). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen in view Terry in to keep the UE in CELL\_FACH state in order to facilitate the PtM type service.

Additionally, Van discloses a *Common Transport Channel Resource Initialization* procedure between a SRNC and a DRNC having a Iur interface (see at least Van Figure 1 and column 2 lines 30-34, 40-43 and 53-62). Van further teaches that the *Common Transport Channel Resource Initialization* procedure is carried out when a UE moves into a cell under DRNC, and the UE is to use common channel (i.e. FACH channel as

taught by Terry) in the new cell (see at least Van column 5 lines 4-25). It would have been obvious to a person of ordinary skill in the art to modify Pirskanen and Terry in view of Van in order to facilitate PtM type services in the situation where a UE is served by a DRNC controlled by a SRNC.

### ***Conclusion***

13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to YU (Andy) GU whose telephone number is (571)270-7233. The examiner can normally be reached on Mon-Thur 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lester G. Kincaid can be reached on 5712727922. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/YU (Andy) GU/

Application/Control Number: 10/561,232

Page 16

Art Unit: 2617

Examiner, Art Unit 2617

/Lester Kincaid/

Supervisory Patent Examiner, Art Unit 2617